

Integrating LID into local codes:
**A GUIDEBOOK FOR
FOR LOCAL GOVERNMENTS**
PUBLIC WORKSHOPS

June 7th
Center for Urban Waters, Tacoma

June 13th
Poulsbo City Hall, Poulsbo

June 20th
Public Utility District No. 1 of Skagit County, Mount Vernon



PRESENTERS

Puget Sound Partnership

- *Bruce Wulkan*

Department of Ecology

- *Ed O'Brien*

AHBL

- *Wayne Carlson*
- *Brad Medrud*

ACKNOWLEDGEMENTS

Advisory Committee

- *Harriet Beale, Department of Ecology*
- *Cathy Beam, City of Redmond*
- *Bill Derry, Consulting Engineer*
- *Ed O'Brien, Department of Ecology*
- *John Palmer, US EPA, Region 10*
- *Brandon Sweezea, Island County*

MEETING AGENDA

I. Introduction – Puget Sound Partnership

**II. How the LID Guidebook and model ordinances relate to the
reissued Municipal Permits – Ecology**

III. Walk through Guidebook – AHBL

i. Questions and Discussion

IV. Break

V. Model Ordinances – AHBL

i. Questions and Discussion

INTRODUCTION

The Puget Sound Partnership, in collaboration with the Department of Ecology and with assistance from AHBL, Inc., is developing a new guidebook and several model ordinances designed to help local government staff integrate low impact development (LID) requirements into local codes and standards.

INTRODUCTION

The guidebook is intended for both local governments complying with LID requirements associated with the pending reissuance of the Phase I and Phase II Western Washington Municipal NPDES Stormwater General Permits and local governments not subject to the reissued permits that wish to integrate LID requirements into their codes and standards.

INTRODUCTION

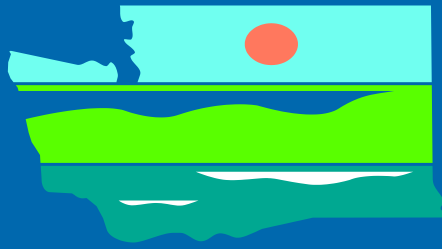
LID Guidebook and Ordinances

- **Funding**
- **Genesis**
- **Objectives**
- **Timeline and process**
- **Connection to the Action Agenda**
- **The next step in LID Local Regulation Assistance Project**
- **How this work fits with rest of the Partnership's LID Technical Assistance**

INTRODUCTION

LID Guidebook and Ordinances

- Relationship of the LID Guidebook to the new LID requirements in Municipal permits



WASHINGTON STATE
DEPARTMENT OF
ECOLOGY

Municipal Stormwater General Permits Western Washington Low Impact Development Preliminary Draft Requirements



PCHB Conclusions

- Phase I Permit must require LID, where feasible
- Establish schedules for Phase II's to use LID
- Discretion to Ecology for Phase II schedule

Prelim Draft Documents

➤ Phase I

- Preliminary draft permit language
 - Appendix 1
- Explanatory Notes

➤ Phase II

- Preliminary draft permit language
 - Appendix 1
- Explanatory Notes

<http://www.ecy.wa.gov/programs/wq/forms/lidspubcomments.html>

Municipal Permit Reissuance Schedule

- **Take comments on preliminary draft – TO ECOLOGY**
 - Through June 17, 2011
- **Ecology Issues Draft Permit for Formal Public Comment**
 - October 19, 2011 – February 3, 2012
- **Workshops and Public Hearings**
 - December 2, 2011 – February 3, 2012
- **Ecology Issues Final permits and Response to Comments**
 - July 2012
- **Permit Effective**
 - August 2012

Proposal Overview

Site & Subdivision Project Requirements

**Updates of Local Development Codes,
Rules, & Standards**

Phase I: S5.C.5.b.iii – Low Impact Development

Phase II: S5.C.4.a.iv – Low Impact Development

Watershed-scale Stormwater Planning



Updates of Codes, Rules, & Standards

- **Incorporate LID Principles & BMP's to the MEP**
- **Revised Codes, etc., become standard operating procedure**
- **Need to justify not using them, rather than asking for allowance to use them**

Update of Codes, Rules, & Standards

Goal of Updates to Minimize:

- **Native vegetation loss**
- **Impervious surface creation**
- **Stormwater surface runoff**



Update of Codes, Rules, & Standards

- **Engineering & Street Standards**
- **Clearing & Grading Ordinance & Standards**
- **Parking Requirements**
- **Individual Zoning District Bulk & Dimension Regulations**
- **Subdivision Standards**
- **Landscaping and Tree Standards**

Draft Permit Statement

“Permittees shall conduct a review and revision process similar to the steps and range of issues outlined in Integrating LID into Local Codes: A Guidebook for Local Governments.”

- Guidebook used as a means to evaluate municipalities' level of effort and product.
- Ecology not identifying minimum technical standards for subject areas
- Substantial effort involving multiple departments

Deadlines

Phase I:

- **December 31, 2013 – Submit drafts**
- **August 31, 2014 – Updated & effective site development codes, rules, standards**
- **Third Annual Report – 3/31/2015**
 - Summary of results and revision process

Phase II:

- **December 31, 2015 – Updated & effective ordinance or other enforceable mechanism**
- **Fourth Annual Report – 3/31/2016**
 - Summary of results and revision process

LID GUIDEBOOK AND ORDINANCES

Introduction

- **AHBL's role in the LID Guidebook process**
- **Our background and experience**

Please wait to ask questions until the end of the LID Guidebook walk through.

Thank you.

LID GUIDEBOOK WALK THROUGH

Introduction – Purpose of the Guidebook

- The guidebook is intended to provide a step-by-step approach for integrating LID into existing and new codes for Phase I and II local governments complying with the LID requirements in the reissued of Western Washington Municipal Stormwater General Permits.

LID GUIDEBOOK WALK THROUGH

Introduction – Purpose of the Guidebook

- In addition, it is meant to be used by local governments who are not subject to the reissued permits, but may want to integrate LID requirements into their codes and standards.

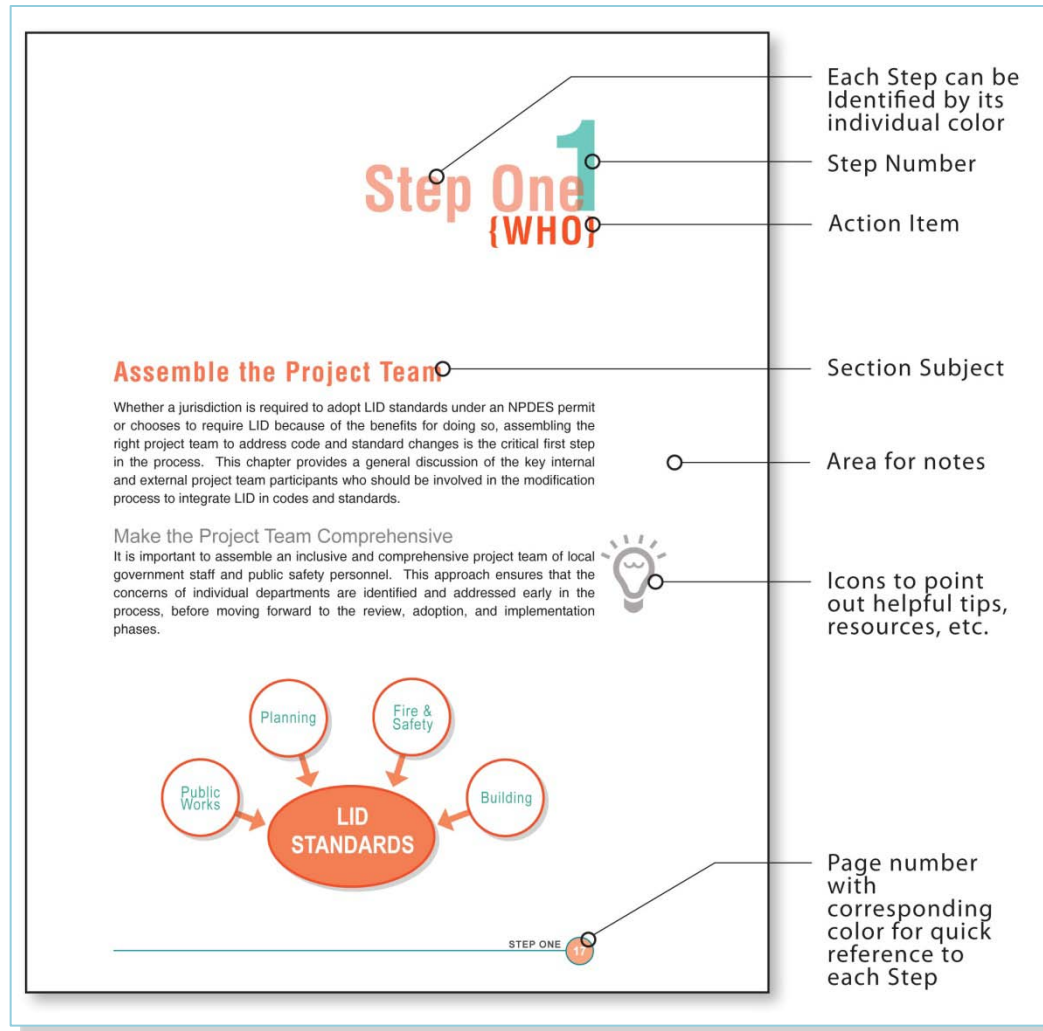
LID GUIDEBOOK WALK THROUGH

Introduction – Intended Audiences

- **There is a wide range of audiences for the Guidebook, each with different needs:**
 - **Phase I versus Phase II jurisdictions**
 - **Small, medium, and large in both size and resources**
 - **Experienced and inexperienced with LID**

LID GUIDEBOOK WALK THROUGH

Introduction – Format of the Guidebook



LID GUIDEBOOK WALK THROUGH

Introduction – Format of the Guidebook



LID GUIDEBOOK WALK THROUGH

Why LID?

Why Integrate LID into Codes?

LID GUIDEBOOK WALK THROUGH

Introduction: Why LID

- **Why a comprehensive code review is important**
 - **Use of LID requires both stormwater and land use approvals**

LID GUIDEBOOK WALK THROUGH

Introduction: Why LID



- **LID as defined by Ecology's reissued permits:**
“Low-impact development (LID) is a stormwater and land use management strategy that strives to mimic pre-disturbance hydrologic processes of infiltration, filtration, storage, evaporation and transpiration by emphasizing conservation, use of on-site natural features, site planning, and distributed stormwater management practices that are integrated into a project design.”

Source: Department of Ecology's Phase I Municipal Stormwater Permit Appendix 1 - Minimum Technical Requirements for New Development and Redevelopment, preliminary draft LID requirement language released May 16, 2011

LID GUIDEBOOK WALK THROUGH

Introduction: Why LID

- **LID – What it is, briefly**
- **Background for the for the new NPDES requirements**
- **Reasons to adopt LID measures for Non-NPDES jurisdictions**



LID GUIDEBOOK WALK THROUGH

Step One ¹ {WHO}

LID GUIDEBOOK WALK THROUGH

Step 1: Who – Assemble the Project Team

Building a comprehensive Project Team and the role of the Team – Who needs to be involved and why

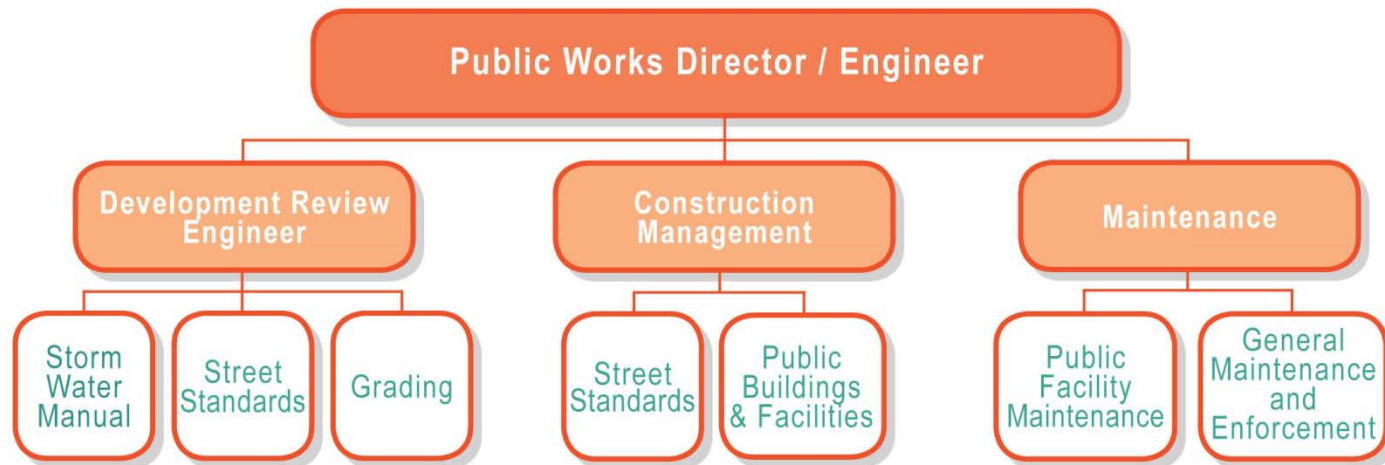


LID GUIDEBOOK WALK THROUGH

Step 1: Who – Assemble the Project Team

- **Key Internal Participants**

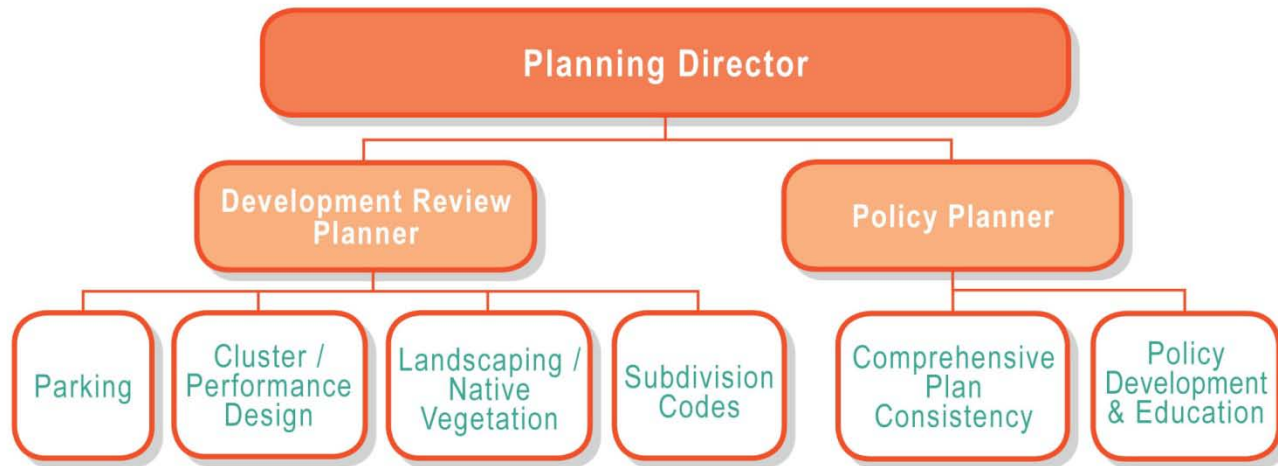
- **Public Works**



LID GUIDEBOOK WALK THROUGH

Step 1: Who – Assemble the Project Team

➤ Planning



LID GUIDEBOOK WALK THROUGH

Step 1: Who – Assemble the Project Team

➤ Fire and Public Safety



LID GUIDEBOOK WALK THROUGH

Step 1: Who – Assemble the Project Team

➤ Building



LID GUIDEBOOK WALK THROUGH

Step 1: Who – Assemble the Project Team

- **Other internal participants**
 - **Natural resources**
 - **Parks**
- **Key external participants**
 - **Governmental**
 - **Non-governmental**

LID GUIDEBOOK WALK THROUGH

Step 1: Who – Assemble the Project Team

- **Role of the team leader**
- **How to bring the Project Team up to a common understanding of LID – Different levels of training may be needed**
- **Sources for technical information and opportunities for further training**

LID GUIDEBOOK WALK THROUGH

Step Two ² {WHAT}

LID GUIDEBOOK WALK THROUGH

Step 2: What – Understand General Topics to Address

- **Now the Project Team is established, the Team reviews general LID topics**
- **Background for this Step – These topics are the primary regulatory and policy areas where LID is addressed**
- **General Topics**
 - **Site Planning and Assessment – Important initial step**
 - **Healthy Soils**

LID GUIDEBOOK WALK THROUGH

Step 2: What – Understand General Topics to Address

- **General Topics**
 - **Landscaping, Native Vegetation and Street Landscaping**
 - **Parking**



LID GUIDEBOOK WALK THROUGH

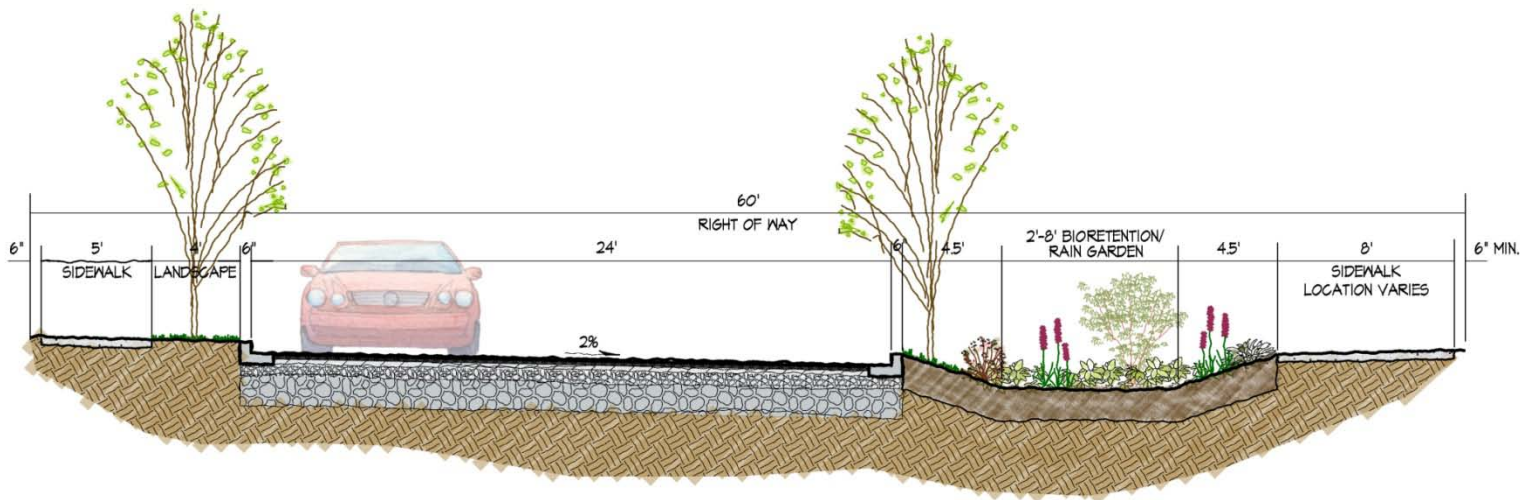
Step 2: What – Understand General Topics to Address

- **General Topics**
 - **Impervious Surface Standards**
 - ❖ **Total Impervious Area (TIA)**
 - ❖ **Effective Impervious Area (EIA)**
 - ❖ **Hard Surfaces – Replaces Impervious Surfaces as trigger for minimum requirements – water quality**

LID GUIDEBOOK WALK THROUGH

Step 2: What – Understand General Topics to Address

- General Topics
 - Clearing and Grading Standards
 - Engineering and Street Standards



LID GUIDEBOOK WALK THROUGH

Step 2: What – Understand General Topics to Address

- **General Topics**
 - **Dimensional Standards – Setback, height, etc.**
 - **Design Guidelines and Standards**
 - **Stormwater Management and Maintenance**
 - **Subdivision and Planned Unit Development**
 - **Critical Areas and Stormwater Management**

LID GUIDEBOOK WALK THROUGH

Step Three 3 {WHERE}

LID GUIDEBOOK WALK THROUGH

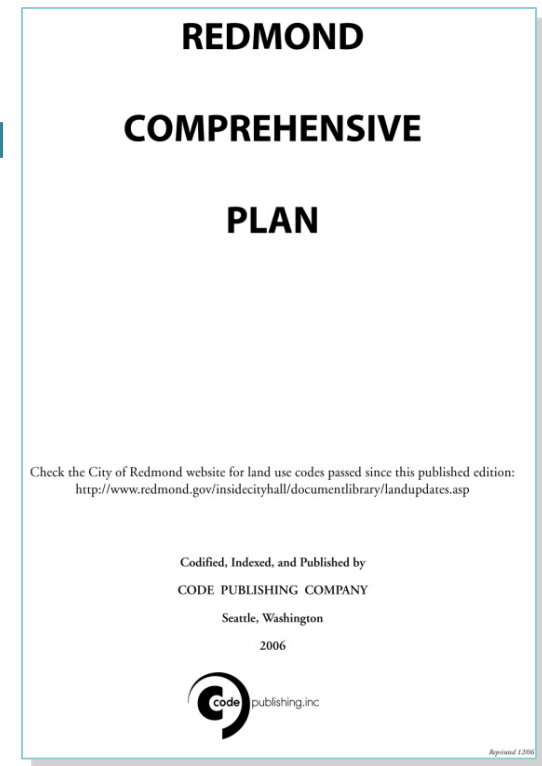
Step 3: Where – Review Existing Codes and Standards

- After what topics need to be addressed is established then determine where changes in the codes and standards need to occur.
- Every jurisdiction has set up their codes to reflect their local concerns – So the Guidebook explores where LID topics may be found in codes.

LID GUIDEBOOK WALK THROUGH

Step 3: Where – Review Existing Codes and Standards

- **Perform Gap Analysis and Review**
 - **Comprehensive Plan Goals and Policies**



LID GUIDEBOOK WALK THROUGH

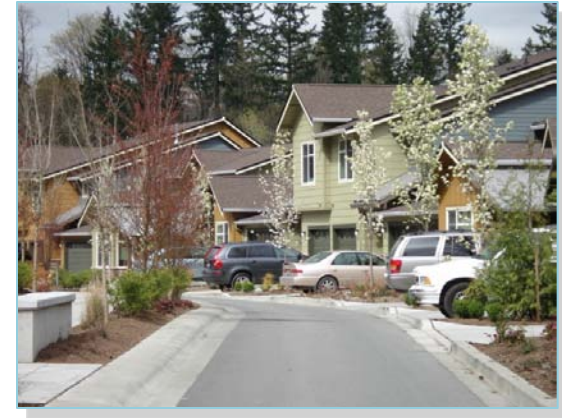
Step 3: Where – Review Existing Codes and Standards

- **Perform Gap Analysis and Review**
 - **Zoning Code – Where to find:**
 - ❖ *Landscaping, Native Vegetation, Tree Protection and Open Space –*
 - ✓ *Landscaping codes*
 - ✓ *Tree preservation*
 - ✓ *Design Guidelines*

LID GUIDEBOOK WALK THROUGH

Step 3: Where – Review Existing Codes and Standards

- **Perform Gap Analysis and Review**
 - **Zoning Code – Where to find:**
 - ❖ *Impervious Surface Standards*
 - ✓ *Parking*
 - ✓ *Street Standards*
 - ✓ *Design Guidelines*



LID GUIDEBOOK WALK THROUGH

Step 3: Where – Review Existing Codes and Standards

- **Perform Gap Analysis and Review**
 - **Zoning Code – Where to find:**
 - ❖ *Bulk and Dimensional Standards*
 - ✓ *Individual Zoning Districts*
 - ✓ *Performance Based Designs - PUDs*
 - ✓ *Subdivision Standards*
 - ✓ *Design Guidelines*

LID GUIDEBOOK WALK THROUGH

Step 3: Where – Review Existing Codes and Standards

- **Perform Gap Analysis and Review**
 - **Zoning Code – Where to find:**
 - ❖ *Site Plan Review*
 - ❖ *Parking*
 - ✓ *Off-Street Parking Regulations*
 - ✓ *Public Works Construction Standards*

LID GUIDEBOOK WALK THROUGH

Step 3: Where – Review Existing Codes and Standards

- **Perform Gap Analysis and Review**
 - **Engineering Codes and Standards– Where to find:**
 - ❖ *Clearing and Grading*
 - ❖ *Engineering and Street Standards*

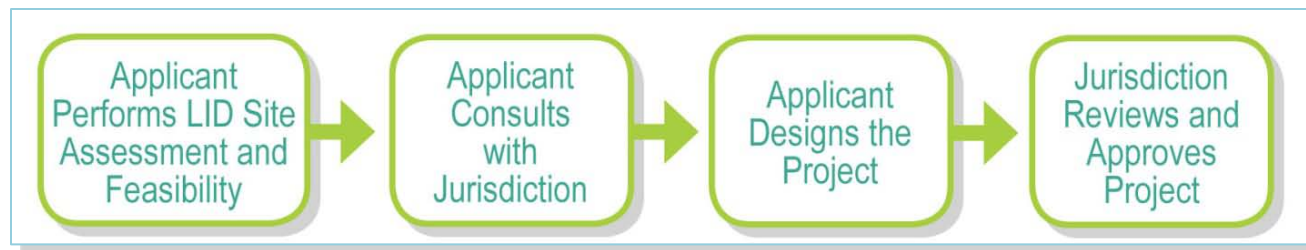
LID GUIDEBOOK WALK THROUGH

Step Four {FILL THE GAPS}

LID GUIDEBOOK WALK THROUGH

Step 4: Fill the Gaps – Amend Existing Codes and Develop New Codes

- After determining where codes are found, fill the gaps
- Establish Process for Reviewing and Approving LID Project
 - Starting this step, consider how best to make LID requirements work within your existing review framework



LID GUIDEBOOK WALK THROUGH

Step 4: Fill the Gaps – Amend Existing Codes and Develop New Codes

- **Considerations and Standards**
 - **What to think about as you revise policies, goals, codes and standards**
 - **Suggestions on what general standards to adopt**

LID GUIDEBOOK WALK THROUGH

Step 4: Fill the Gaps – Amend Existing Codes and Develop New Codes

- **Considerations and Standards**

- **Comprehensive Plan Goals and Policies**

Considerations

- Comprehensive Plan Goals and Policies should not present a barrier or hindrance to the use and adoption of regulations supporting LID. For example, a land use or transportation policy that calls for the use of standard curb and gutter for all development in a jurisdiction would not allow the flexibility to use LID best management practices (BMPs) in street design.
- Comprehensive Plan policies should be written to explicitly support LID.

LID Standards

- LID should be called out as the preferred method of addressing stormwater management unless proven infeasible.
- Policies or goals that present barriers to LID should be modified or removed.
- Policies supporting dual use of landscaping or open space and LID should be added as well as policies that preserve native vegetation and trees.
- Policies should include a preference for projects that minimize impervious surface area and reduce EIA.

LID GUIDEBOOK WALK THROUGH

Step 4: Fill the Gaps – Amend Existing Codes and Develop New Codes

- **Considerations and Standards**

- **Subdivision Code**

Considerations

- In many cases, the subdivision code will be primarily concerned with enacting the procedural requirements of RCW Chapter 58.17 in a jurisdiction, but in some cases there will be additional requirements dealing with subdivision improvements that could affect the ability of a jurisdiction to implement LID BMPs.

LID Standards

- Require the use of LID techniques as a condition of approval for preliminary subdivisions. Add language to ensure that appropriate measures are taken to manage stormwater by LID where feasible and emphasize conservation and use of on-site natural features.
- Add provisions to require LID unless proven infeasible and other provisions that support LID such as preserving open space, native vegetation and sensitive environmental areas, minimizing impervious surfaces and eliminating EIA.
- Require that applicants conduct an LID site analysis and bring the results of this analysis to the required pre-application conference. The analysis would include information similar to that shown in the box on page 50 and identify proposed LID BMPs.

LID GUIDEBOOK WALK THROUGH

Step 4: Fill the Gaps

❖ *Sample LID Site Analysis Checklist Language*

Example LID Site Analysis Checklist Language

A. The site analysis requirements shall be submitted in addition to all other requirements for development approval for a project and may be submitted prior to the filing of other applications. The Administrator may chose to waive certain components required in this section as appropriate.

B. Purpose of the Site Analysis: Low impact development (LID) site design is intended to complement the predevelopment conditions on the site. LID Site Analysis is part of the process to determine feasibility of a project site for LID. The initial inventory and analysis process will provide baseline information necessary to design strategies that preserve natural resources, preserve areas most appropriate to evaporate, transpire, and infiltrate stormwater, and achieve the goal of maintaining pre-development natural hydrologic conditions on the site.

C. The site analysis shall include, at a minimum, the following information:

1. A survey prepared by a registered land surveyor showing existing public and private development, including utility infrastructure on and adjacent to the site, major and minor hydrologic features, including seeps, springs, closed depression areas, drainage swales, and contours as follows:
 - a. Up to 10 percent slopes, two-foot contours.
 - b. Over 10 percent to less than 20 percent slopes, five-foot contours.
 - c. Twenty percent or greater slopes, 10-foot contours.
 - d. Elevations shall be at 25-foot intervals.
2. A soils report prepared by a licensed geotechnical engineer or licensed engineering geologist. The report shall identify:

[...]

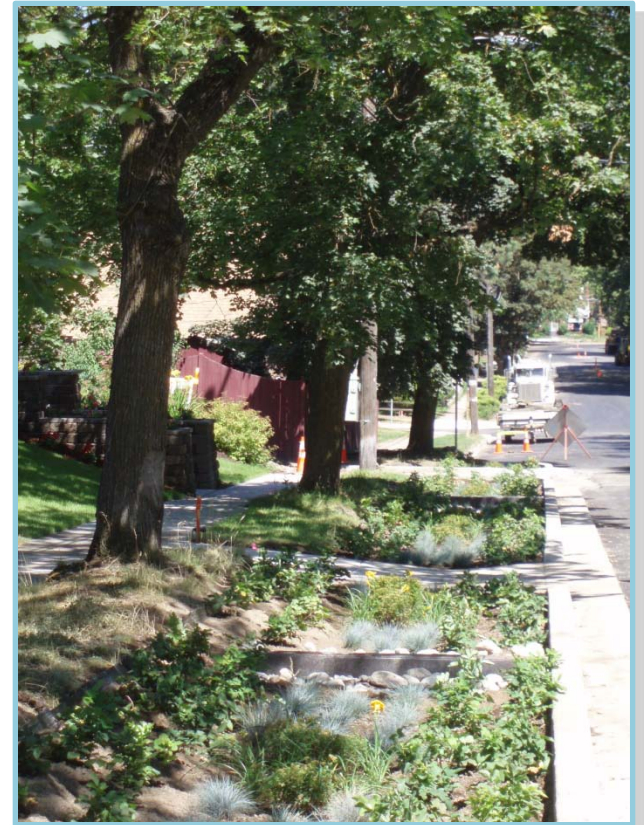
LID GUIDEBOOK WALK THROUGH

Step 4: Fill the Gaps – Amend Existing Codes and Develop New Codes

- **Considerations and Standards**

- **Zoning Code**

- ❖ *Landscaping, Native Vegetation, Tree Protection and Open Space*



LID GUIDEBOOK WALK THROUGH

Step 4: Fill the Gaps – Amend Existing Codes and Develop New Codes

➤ Zoning Code

❖ *Landscaping, Native Vegetation, Tree Protection and Open Space*

Considerations

- Native vegetation plays an important first step in LID and its retention and protection should be stressed. Where possible, look to first retain existing native vegetation and emphasize the use of native and other drought tolerant species in landscaping, especially conifers.
- Explore how tree protection, retention, and planting standards can work to maintain and expand vegetative cover in support of LID.
- Look for opportunities to support the dual use of landscaping for screening, buffers, aesthetics, and LID stormwater facilities. This includes promoting the preservation of open space where possible to meet stormwater and other desired functions.
- Review options for providing tree credits. Some jurisdictions offer stormwater credits for use of urban trees. For example, the City of Seattle provides stormwater tree credits based on a study of trees and stormwater management conducted by Herrera Environmental Consultants.

LID GUIDEBOOK WALK THROUGH

Step 4: Fill the Gaps – Amend Existing Codes and Develop New Codes

❖ *Landscaping, Native Vegetation, Tree Protection and Open Space*

LID Standards

- Add a native vegetation retention section of code that requires setting aside a portion of the site being developed in native vegetation. Set native vegetation retention standards for sites based on land use and density. These standards should include a definition of native vegetation and minimum tree density, minimum retention requirements, protecting native vegetation areas, replanting requirements, soil amendment standards, management plan specifications and maintenance requirements.
- A list of native species either in the code or referenced by the code would be a good addition. It should include plant lists, replanting standards, management plan specifications, and maintenance requirements. See the box below for references for native species.
- Language addressing native vegetation retention can be especially beneficial when combined with other requirements for open space, reserve areas, critical area buffers and development of other tracts of undeveloped land through the subdivision, PUD, or site plan review process.
- Adopt specific language emphasizing the benefits of retaining trees and native vegetation in development. This will include requirements for tree and native vegetation retention as well as replanting standards in support of LID.

LID GUIDEBOOK WALK THROUGH

Step 4: Fill the Gaps – Amend Existing Codes and Develop New Codes

❖ *Landscaping, Native Vegetation, Tree Protection and Open Space*

LID Standards (cont.)

- Tree conservation standards and minimum tree density standards can be based on a number of different systems such as a tree unit credit system or percentage of coverage or clustering. These standards can be adjusted to address different development intensities in a jurisdiction.
- Provide a tree species table in the code or referenced by the code listing Pacific Northwest native and near native species appropriate for native vegetation requirements. The list could consider species that are appropriate for different settings.
- Require landscape performance bonds to ensure plant survival.
- Because of their ability to intercept more stormwater during the winter months, emphasize the presentation and planting of conifers over deciduous trees.

LID GUIDEBOOK WALK THROUGH

Step 4: Fill the Gaps – Amend Existing Codes and Develop New Codes

➤ Zoning Code

❖ *Impervious Surface Standards*

Considerations

- Reducing total impervious surface area, hard surfaces and eliminating EIA, where feasible is a primary principle of the LID approach.

LID Standards

- Establish standards for both TIA and EIA.
- Establish standards for hard surface areas.
- Establish maximum EIA percentages for a range of zoning classifications in a jurisdiction, as opposed to just defining building coverage percentage. Allow certain uses such as commercial that require more surface area to use pervious surfacing to go above the effective impervious surface requirements.

LID GUIDEBOOK WALK THROUGH

Step 4: Fill the Gaps – Amend Existing Codes and Develop New Codes

➤ Zoning Code

❖ *Bulk and Dimensional Standards*

Considerations

- To offset reductions in EIA, review the existing bulk and dimensional standards to look for ways to allow more flexibility in site design for LID, such as increasing building height or reducing building setbacks.
- Look for opportunities to balance changes made to support LID with ways to achieve other goals, such as increasing density, providing flood plain protection, or supporting commercial development.
- Allow clustering, options for development, and increased densities in higher intensity areas.



LID GUIDEBOOK WALK THROUGH

Step 4: Fill the Gaps – Amend Existing Codes and Develop New Codes

➤ Zoning Code

❖ *Bulk and Dimensional Standards*

LID Standards

- When there is a reduction in building footprint, increase height limits to help meet density goals and reduce EIA by incentives or in specific higher density areas where LID is applied.
- Reduce setbacks to allow greater flexibility with site design for LID either through incentives or higher intensity areas.
- If structured parking is not feasible, use pervious pavement to increase parking area, sidewalks, or plaza while allowing for LID where feasible.
- Examine performance based design standards to allow greater flexibility in site design in exchange for more opportunities to make LID work.
- Encourage structured parking where possible to reduce EIA.
- Look at how design standards can be used to decrease EIA by more flexible site design.
- Look at how parking standards can be adjusted to reduce EIA, such a minimum and maximum stall requirements, use of pervious paving, and reduced stall size.
- Consider increasing density within Urban Growth Areas that are suitable for more intense development to preserve areas more suitable for large scale LID development.

LID GUIDEBOOK WALK THROUGH

Step 4: Fill the Gaps – Amend Existing Codes and Develop New Codes

➤ Zoning Code

❖ *Site Plan Review*

Considerations

- Site analysis (see sample on page 50) requirements should be a necessary addition to the code in the early stages of project conception. Site analysis requires the applicant to document the site with both textual and graphic information early in the development review process. That allows for LID to be incorporated into the site design at the early stages of project conception, and the placement and function of LID facilities is not compromised. See box below.
- Look at mechanisms in other sections of the code to decrease building footprints, reduce EIA, reduce hard surfaces and retain tracts of native vegetation.
- Think about how to best protect LID related features during the development and construction process.
- Consider an LID consultation process for small residential development activities and for single-family residential lots where LID is required.

LID GUIDEBOOK WALK THROUGH

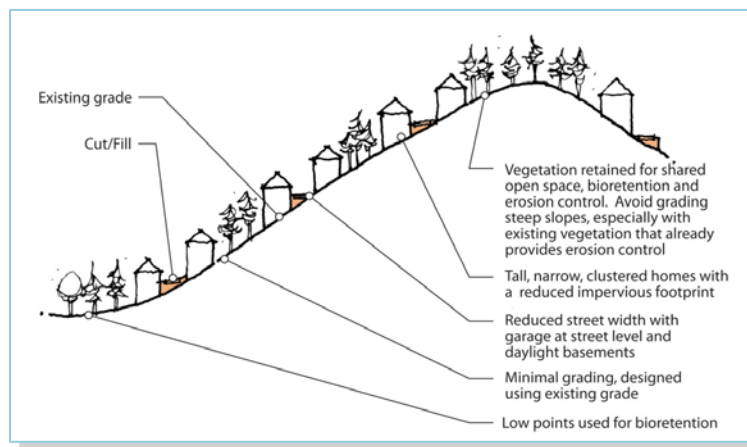
Step 4: Fill the Gaps – Amend Existing Codes and Develop New Codes

➤ Zoning Code

❖ *Site Plan Review*

LID Standards

- Require applicants to conduct an LID site analysis (see sample on page 50) prior to submitting a site plan review application and make sure all required elements are present.
- Outline construction sequencing and practices for protecting pervious areas and LID BMPs during construction.
- Ensure that LID has been used in all cases except where it is not feasible.
- Review the project design to ensure that stormwater is being adequately managed in distributed, small scale LID hydrologic controls.



LID GUIDEBOOK WALK THROUGH

Step 4: Fill the Gaps – Amend Existing Codes and Develop New Codes

➤ Zoning Code

❖ *Parking*

Considerations

- Look to revise code to facilitate permeable surfacing in parking areas to the extent feasible.
- Look for opportunities to reduce the amount of EIA in parking lots through a variety of methods such as:
 - » Reducing the number of required parking spaces.
 - » Specifying a maximum number of parking spaces that cannot be exceeded.
 - » Reducing parking space dimensions and circulation corridors and/or provide for compact spaces.
 - » Utilizing pervious pavement and other materials that allow surface water to infiltrate and/or evaporate rather than enter storm ponds.
- Allow the dual use of parking lot landscaping for both an aesthetic and stormwater management function. Allow parking curbs and gutters to have “breaks” to allow surface water to enter bioretention facilities within parking landscape islands.
- Look at preparing a parking survey to evaluate current parking requirements. The survey would help to analyze whether or not current parking requirements were in line with other jurisdictions in the Puget Sound area. Results of the parking survey could help to determine if parking code revisions to support LID are needed for future redevelopment projects.

LID GUIDEBOOK WALK THROUGH

Step 4: Fill the Gaps – Amend Existing Codes and Develop New Codes

➤ Zoning Code

❖ *Parking*

LID Standards

- Add language that requires the use of LID BMPs in parking lots where site and soil conditions make such LID techniques feasible. This would include the use of permeable surfacing, where appropriate, establishing minimum and maximum parking ratios, and reducing the size of spaces and access ways.
- Add language integrating LID stormwater management facilities into parking lot landscaping where feasible.
- Add language requiring all parking spaces above the minimum number required by code to be pervious unless infeasible.
- Adjust parking ratios as needed after reviewing existing standards.

LID GUIDEBOOK WALK THROUGH

Step 4: Fill the Gaps – Amend Existing Codes and Develop New Codes

➤ Zoning Code

❖ *Planned Unit Developments*

Considerations

- Look at mechanisms that support clustering, such as cottage housing developments, to reduce building footprints, EIA and retain tracts of native vegetation.
- Preserve the ecological benefits of large tracts of undeveloped land.
- Recommend adding LID site analysis be a requirement for PUDs, so that LID can be incorporated into the site design in the early stages of project conception.

LID Standards

- Require applicants to conduct an LID site analysis as outlined on page 50 prior to submitting a site plan review application.
- Require native vegetation retention, native soil protection and amendment, and site design flexibility as well as LID when feasible.
- Allow a range of mechanisms that support clustering development.

LID GUIDEBOOK WALK THROUGH

Step 4: Fill the Gaps – Amend Existing Codes and Develop New Codes

➤ Zoning Code or Engineering Standards

❖ Clearing and Grading Standards

Considerations

- Minimizing on-site disturbance is a good way to protect the natural vegetation, soils and natural water flow on a site.
- Outline construction sequencing and practices for protecting pervious areas and LID BMPs during construction.

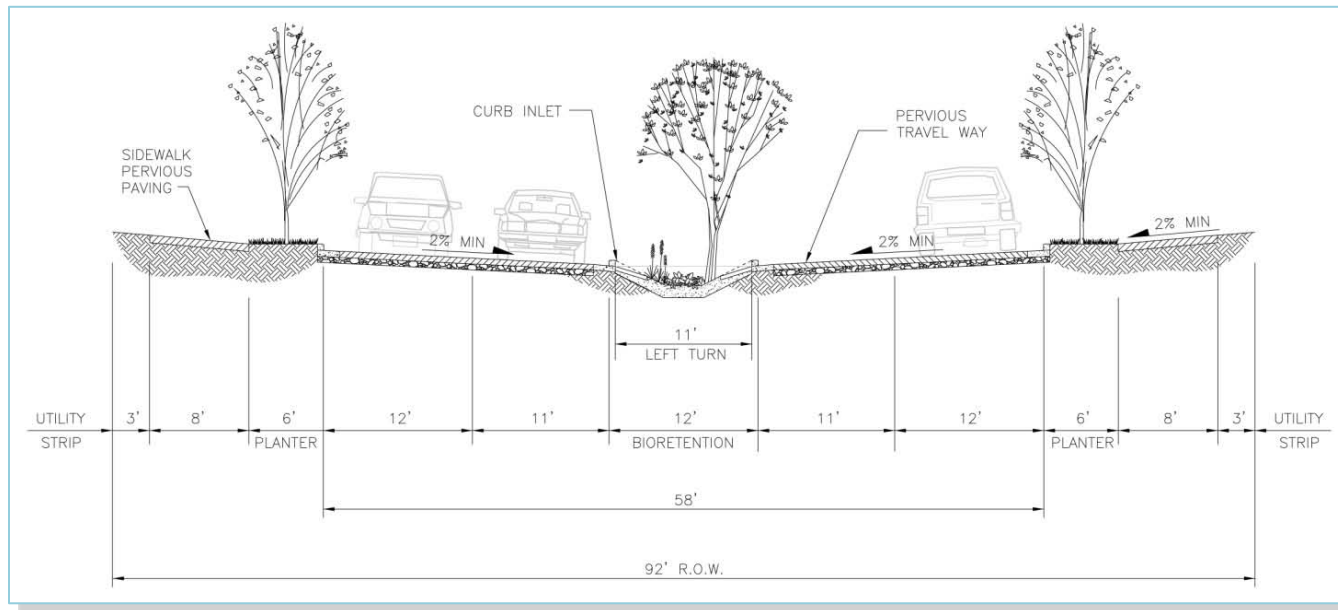
LID Standards

- The draft Clearing and Grading ordinance reflects typical administrative requirements and LID BMPs and provides a set of 'performance standards' that address site containment, construction phasing, protecting pervious areas, including native soils and vegetation, and LID facilities during construction process, and minimizing the amount of clearing and grading necessary to build on the site.

LID GUIDEBOOK WALK THROUGH

Step 4: Fill the Gaps – Amend Existing Codes and Develop New Codes

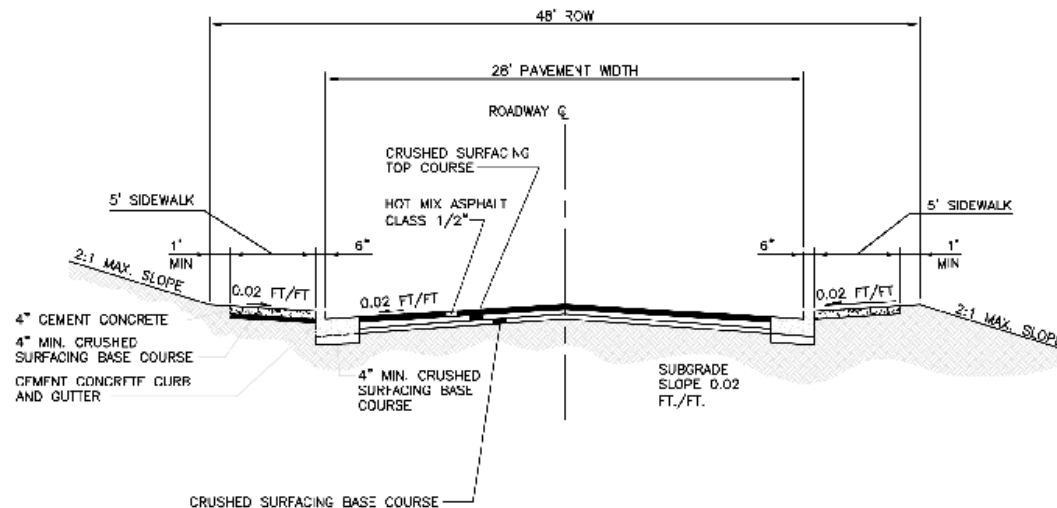
- **Considerations and Standards**
 - **Engineering and Street Standards**



LID GUIDEBOOK WALK THROUGH

Step 4: Fill the Gaps – Amend Existing Codes and Develop New Codes

- Considerations and Standards
 - Engineering and Street Standards



LID GUIDEBOOK WALK THROUGH

Step Five {REVIEW & ADOPT}

LID GUIDEBOOK WALK THROUGH

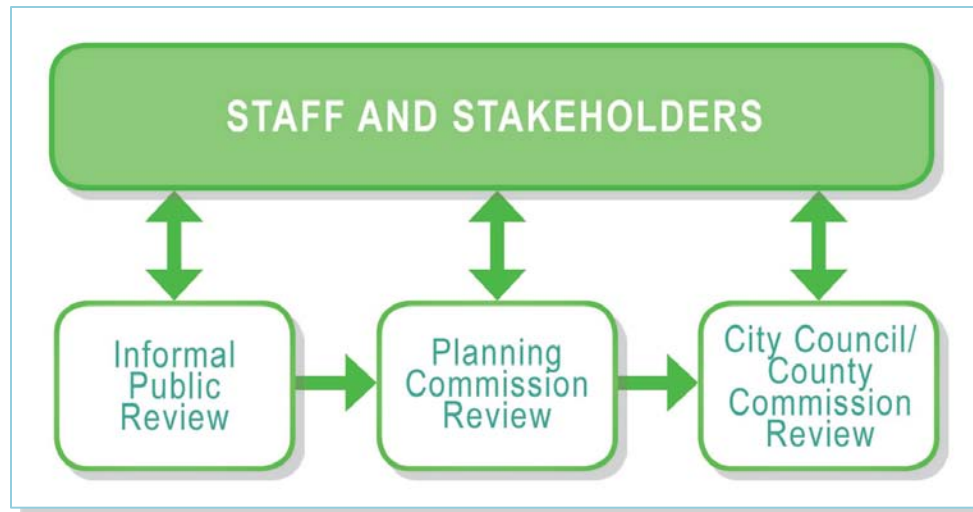
Step 5: Review & Adopt – Public Review and Adoption Process

- **General Overview of Code Modification Process**
- **Involve Stakeholders Early in the Adoption Process**
- **Understand the Amendment Process**

LID GUIDEBOOK WALK THROUGH

Step 5: Review & Adopt – Public Review and Adoption Process

- Internal Review
- Public Review and Approval
 - Identify Adoption challenges



LID GUIDEBOOK WALK THROUGH

Step Six {IMPLEMENTATION}

LID GUIDEBOOK WALK THROUGH

Step 6: Implementation – Ensure Successful Implementation

- **Staff Resources**
- **Ongoing Training and Education**
 - **Training Staff**
 - **Training Applicants, Designers, and Contractors**

LID GUIDEBOOK WALK THROUGH

Step 6: Implementation – Ensure Successful Implementation

- **Ongoing Training and Education**
 - **Certification Programs**
 - **Look for Efficiencies with Other Local Governments**

LID GUIDEBOOK WALK THROUGH

Step 6: Implementation – Ensure Successful Implementation

- **Ongoing Training and Education**
 - **Review and Establish Maintenance Procedures**
 - **Maintenance Schedules and Enforcement**

LID GUIDEBOOK WALK THROUGH

Appendices

- **Sources of Information**
 - **Websites**
 - **Manuals and Books**
 - **Model Ordinances**

Questions and Discussion

- **Any Clarifying Questions?**
- **Question to Consider: What else would you like to see in the Guidebook and why?**
- **Comments and Discussion**

LID MODEL ORDINANCES

Model Regulatory Language

Intent of the Language – What are we trying to achieve

- **Off-Street Parking and Loading**
- **Clearing and Grading**
- **Planned Unit Developments**
- **Site Assessment**

LID MODEL ORDINANCES

Model Regulatory Language

- **Grading, Land Clearing, and Tree Cutting**
 - **Applicability Thresholds**
 - **Procedural Requirements (e.g., process for approval, public notice, appeals, etc.)**
 - **Application Requirements (e.g., who may prepare, number of copies, etc.)**
 - **Performance Standards**

LID MODEL ORDINANCES

Model Regulatory Language

- **Grading, Land Clearing, and Tree Cutting**
 - **Performance Standards**
 - Minimize Potential Impacts
 - Site Containment
 - Protection of Downstream Properties & Waterways
 - Stabilization of Disturbed Areas
 - Dust Suppression
 - Erosion and Sedimentation Control
 - Native Soil Protection and Amendment
 - Cut and Fill Slopes
 - Seasonality – Temporary Restrictions
 - Maintenance
 - Site-Specific Requirements
 - Tree Protection During Construction
 - Protect LID BMPs During Construction

LID MODEL ORDINANCES

Model Regulatory Language

- **Off-Street Parking and Loading**
 - **Identifies methods for minimizing impervious surface including the use of compact spaces along with minimum and maximum parking standards**
 - **Identifies parking lot landscaping as a multi-function landscape where stormwater management is permitted**
 - **Does not discuss the surfacing of parking facilities. Specific surfacing requirements would be identified in engineering standards.**

LID MODEL ORDINANCES

Model Regulatory Language

- **Planned Unit Development**
 - **Several communities that PSP provided technical assistance to did not have cluster zoning chapters. This chapter is intended to provide a framework for communities that do not have clustering ordinances.**

LID MODEL ORDINANCES

Model Regulatory Language

- **Site Assessment**
 - **Provides an example of a checklist that a community might employ when reviewing a site assessment prepared in support of a development application**

LID MODEL ORDINANCES

Model Regulatory Language

- **Are there other ordinances, sample codes, or engineering details that you would like to have prepared?**

WRITTEN COMMENTS

How to Provide Written Comments

Copies of the Guidebook and Ordinances are available to review at http://www.psp.wa.gov/LID_GLG.php

The Partnership is seeking comment from interested parties on drafts of the guidebook and model ordinances from June 1 to June 30, 2011. The Partnership plans to release final versions of the guidebook and model ordinances during Fall 2011. If you would like to review the drafts and provide comments, please follow the instructions below.

Please email your comments on the draft guidebook and model ordinances to: thuch.mam@psp.wa.gov. Please include “Comments on LID Guidebook” in the subject line.

Alternatively, you may mail comments to: Thuch Mam, Puget Sound Partnership, “Comments on LID Guidebook,” 326 East D Street, Tacoma, WA 98421.

WRITTEN COMMENTS

How to Provide Written Comments

For clarity, please provide the following with your comments:

- The name of the document to which your comment applies.
- The chapter and page number related to your comment.

Please limit your comments to the draft guidebook and model ordinances rather than to other elements of the municipal stormwater permits.

Ecology is soliciting comments on preliminary draft LID requirements for the western Washington Municipal Stormwater Permits through June 17, 2011.

For more information see:

<http://www.ecy.wa.gov/programs/wq/forms/lidspubcomments.html>